

CLAIMS

1. A communications device which is part of a network system involving multiple communications devices and a communications network connecting the devices,

said communications device comprising transmit means for transmitting signals from said communications device to another communications device, said signals being transmitted first in respective communications establish processes performed between said communications device and the other communications device so as to establish data communications between said communications device and the other communications device.

2. The communications device of claim 1, wherein:

the other communications device is a central control device for managing a transmission right for the communications network;

the data communications are a downlink stream communications from the other communications device to said communications device; and

the transmit means transmits a request signal, as said signals, to the other communications device, the request signal indicating a request for an ACK information specify process related to group ACK to establish the downlink

stream communications.

3. The communications device of claim 2, wherein the request
signal also indicates information on a group ACK type desired
5 by said communications device and information on a stream
receive buffer size in said communications device.

4. A communications device which is part of a network system
involving multiple communications devices and a
10 communications network connecting the devices,

said communications device comprising:

receive means for receiving signals from another
communications device, said signals being transmitted first in
respective communications establish processes performed
15 between said communications device and the other
communications device so as to establish data
communications between said communications device and the
other communications device; and

transmit means for transmitting, to the other
20 communications device, response signals respectively to said
signals which are transmitted first.

5. The communications device of claim 4, wherein:

said communications device is a device for managing a
25 transmission right for the communications network;

the data communications is a downlink stream communications from said communications device to the other communications device; and

the receive means receives a request signal, as said
5 signals, from the other communications device, the request signal indicating a request for an ACK information specify process related to group ACK to establish the downlink stream communications.

10 6. The communications device of claim 5, wherein the response signals also indicate information on a group ACK type desired by said communications device and information on a stream transmit buffer size in said communications device.

15 7. A communications device which is part of a network system involving multiple communications devices and a communications network connecting the devices,

said communications device comprising:

20 receive means for receiving a first request signal from another communications device so as to establish data communications between said communications device and the other communications device, said first request signal indicating a request for a first communications establish
25 process;

determine means for determining whether to accept the request in the first request signal; and

transmit means for transmitting a second request signal indicating a request for a second communications establish process to the other communications device so as to establish data communications between said communications device and the other communications device,

wherein if the determine means has accepted the request, the transmit means transmits the second request signal to the other communications device.

8. The communications device of claim 7, wherein:

said communications device is a device for managing a transmission right for the communications network;

the data communications is a downlink stream communications from the other communications device to said communications device;

the receive means receives a request signal, as the first request signal, indicating a request for a bandwidth information specify process; and

the transmit means transmits a request signal, as the second request signal, indicating a request for an ACK information specify process related to group ACK.

9. The communications device of claim 8, further comprising:

a MAC sublayer for transmitting a request signal indicating a request that the other communications device specify ACK information related to group ACK; and

a management layer, provided with the determine means, for managing the MAC sublayer,

wherein if the determine means has accepted the request, the management layer issues an instruction to the MAC sublayer to transmit a request signal indicating a request for specification of the ACK information related to group ACK.

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10. A communications device which is part of a network system involving multiple communications devices and a communications network connecting the devices,

said communications device comprising:

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transmit means for transmitting a request signal indicating a request for a predetermined communications establish process to another communications device so as to establish data communications between said communications device and the other communications device;

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receive means for receiving, from the other communications device, a response signal to the request signal;

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determine means for determining based on the response signal whether the predetermined communications establish process has been performed; and

notify means for notifying the other communications device of a determination made by the determine means.

11. The communications device of claim 10, wherein:

5 the other communications device is a central control device for managing a transmission right for the communications network;

10 the data communications are a downlink stream communications from the other communications device to said communications device;

 the transmit means transmits a request signal, as the request signal, indicating a request for a bandwidth information specify process; and

15 the determine means determines whether the bandwidth information specify process has been performed.

12. A communications device which is part of a network system involving multiple communications devices and a communications network connecting the devices,

20 said communications device comprising:

 receive means for receiving a request signal from another communications device so as to establish data communications between said communications device and the other communications device, the request signal indicating a
25 request for a communications establish process which

includes a process of specifying predetermined information;
and

compare means for comparing said communications
device with the other communications device in priority on
5 the basis of the request signal,

wherein if the other communications device has higher
priority, said communications device transmits a response
signal indicating the predetermined information to the other
communications device so as to establish data
10 communications between said communications device and the
other communications device.

13. A communications device which is part of a network
system involving multiple communications devices and a
15 communications network connecting the devices,

said communications device comprising:

receive means for receiving a request signal from
another communications device so as to establish data
communications between said communications device and the
20 other communications device, the request signal indicating a
request for a communications establish process which
includes a process of specifying predetermined information;
and

compare means for comparing said communications
25 device with the other communications device in priority on

the basis of the request signal,

wherein if said communications device has higher priority, said communications device transmits a response signal to the other communications device so as to establish data communications between said communications device and the other communications device, the response signal including a process of specifying information specified by said communications device.

10 14. The communications device of either one of claims 12 and 13, wherein:

the communications establish process is an ACK information specify process related to group ACK; and

15 the request signal includes information on group ACK type.

15. The communications device of any one of claims 12 to 14, wherein:

20 the request signal includes information as to whether the other communications device from which the request signal originates is a source or a destination in the data communications;

25 the priority is determined based on whether the other communications device from which the request signal originates is a source or a destination in the data

communications.

16. A communications device which is part of a network system involving multiple communications devices and a communications network connecting the devices,

said communications device comprising:

transmit means for transmitting a first request signal to another communications device so as to establish data communications between said communications device and the other communications device; and

receive means for receiving a second request signal from the other communications device so as to establish data communications between said communications device and the other communications device,

wherein the first request signal indicates information as to whether said communications device is a source or a destination in the data communications.

17. A network system, comprising:

the communications device of claim 1; and

the communications device of claim 4.

18. A network system, comprising:

the communications device of claim 7; and

another communications device connected to the

communications device over the communications network.

19. A network system, comprising:

the communications device of claim 10; and

5 a central control device, connected to the
communications device over the communications network, for
managing a transmission right for the communications
network.

10 20. A communications managing method for use in a network
system including at least one communications device and a
central control device connected to the at least one
communications device over a communications network, the
central control device managing a transmission right for the
15 communications network,

said communications managing method comprising the
sequential steps of:

the at least one communications device transmitting a
request signal to the central control device so as to establish
20 downlink stream communications from the central control
device to the at least one communications device, the request
signal indicating a request for an ACK information specify
process related to group ACK;

the central control device receiving the request signal
25 from the at least one communications device, the request

signal indicating a request for an ACK information specify process;

the central control device transmitting, to the at least one communications device, a response signal to the request
5 signal indicating a request for an ACK information specify process; and

the at least one communications device receiving the response signal from the central control device.

10 21. A communications managing method for use in a network system including at least one communications device and a central control device connected to the at least one communications device over a communications network, the central control device managing a transmission right for the
15 communications network,

said communications managing method comprising the sequential steps of:

the central control device receiving a request signal from the at least one communications device so as to establish
20 downlink stream communications from the central control device to the at least one communications device, the request signal indicating a request for a bandwidth information specify process;

the central control device determining whether to accept
25 the request for a bandwidth information specify process

indicated by the request signal; and

if the central control device has accepted the request in the preceding step, the central control device transmitting a request signal to the at least one communications device so as to establish the downlink stream communications, the request signal indicating a request for an ACK information specify process related to group ACK.

22. A communications managing method for use in a network system including at least one communications device and a central control device connected to the at least one communications device over a communications network, the central control device managing a transmission right for the communications network,

said communications managing method comprising the sequential steps of:

the at least one communications device transmitting a request signal to the central control device so as to establish downlink stream communications from the central control device to the at least one communications device, the request signal indicating a request for a bandwidth information specify process;

the at least one communications device receiving, from the central control device, a response signal to the request signal;

the at least one communications device determining from the response signal whether the bandwidth information specify process has been performed; and

5 the at least one communications device notifying the central control device of a determination made in the preceding step.

23. A request signal used in a communications managing method whereby one of communications devices connected with each other over a communications network transmits a request signal to another one of the communications devices so as to establish data communications between the communications devices, the request signal transmitted first in each of multiple communications establish processes performed between the communications devices,

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the request signal indicating information based on which the data communications are established, the information being required when said one of communications devices acts as any one of a source device, a destination device, and a central control device for managing a communications right for the network in the data communications.

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24. A request signal in a network system including at least one communications device and a central control device connected to the at least one communications device over a

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communications network, the central control device managing a transmission right for the communications network, the request signal being transmitted from the at least one communications device to the central control device, the
5 request signal enabling establishment of downlink stream communications from the central control device to the at least one communications device,

the request signal indicating information being required so that the at least one communications device which is a
10 destination of streaming data specifies ACK information related to group ACK.

25. A response signal in a communications managing method whereby: one of communications devices connected with each
15 other over a communications network transmits a request signal to another one of the communications devices so as to establish data communications between the communications devices, the request signal transmitted first in each of multiple communications establish processes performed
20 between the communications devices; and the other communications devices transmits, to said one of communications devices, a response signal to the request signal,

the response signal indicating information being
25 required when the other communications device becomes any

one of a source device, destination device, and a central control device managing a communications right for the network in the data communications, the information enabling establishment of the data communications.

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26. A response signal being transmitted from a central control device connected to at least one communications device over a communications network to the at least one communications device, the central control device managing a transmission right for the communications network, the response signal being made in response to a request signal enabling establishment of downlink stream communications from the central control device to the at least one communications device,

15 the response signal indicating information enabling the central control device which is a source of streaming data to specify ACK information related to group ACK.

20 27. A computer program causing a computer to function as the means of the communications device of any one of claims 1 to 16.

25 28. A computer program causing a computer to execute the communications managing method of any one of claims 20 to 22.

29. A storage medium containing the computer program of either one of claims 27 and 28.